

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION**

**ORDER NO. 94-040  
WASTE DISCHARGE REQUIREMENTS**

**USS-POSCO INDUSTRIES,  
WASTE MANAGEMENT UNIT II,  
CLASS II SOLID WASTE MANAGEMENT UNIT  
PITTSBURG, CONTRA COSTA COUNTY**

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Board), finds that:

1. The USS-POSCO Industries (hereinafter referred to as the discharger) Pittsburg Facility is located on the north side of the City of Pittsburg, Contra Costa County. The facility (site) was previously owned by USX Corporation and steel operations have been conducted at the site since 1909. The New York Slough marks the northern boundary of the property, as shown in Figures 1 and 2. Figures 1 and 2 are incorporated herein and made part of this Order.
2. The purpose of this order is to establish Waste Discharge Requirements for the construction and operation of a Class II Waste Management Unit (WMU) for the receipt of designated waste that is generated onsite. The unit, identified as WMU II, will cover approximately 7 acres. Waste Discharge Requirements delineated within this order are limited to the WMU II portion of the facility and do not supercede any existing Waste Discharge Requirements for any other portion of the facility.
3. The discharger currently operates a metal finishing facility at which products including cold-rolled steel, galvanized steel, and tin- and chrome-plated steel strip are produced. Methods used in steel finishing at the site include electrolytic tinning and chroming, pickling with hydrochloric and sulfuric acid, hot dip galvanizing, cold rolling, alkaline cleaning, and annealing. By-products from these processes are treated onsite at the Terminal Wastewater Treatment Plant (TWTP) and the wastewater treatment oil separation system. Dewatered sludges from the TWTP and the wastewater treatment oil separation system have been and are currently landfilled in the adjacent unit, WMU I.

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4. Pursuant to Department of Toxic Substances Control (DTSC) requirements, the discharger must close WMU I upon completion of WMU II because the discharger is no longer placing hazardous waste in WMU I. Closure oversight of WMU I will be provided by DTSC.
5. WMU II will be located along the north boundary of WMU I. This places WMU I hydrologically upgradient from WMU II.
6. Sections 2533(b), (c), (d), and (e) of Chapter 15, Title 23, CCR, (hereafter referred to as Chapter 15) states that new Class II landfills shall be sited where soil characteristics, distance from groundwater, and other factors will ensure no impairment of beneficial uses of surface water or of groundwater beneath or adjacent to the landfill. These factors have been evaluated as indicated below:
  - a. size of the waste management unit [Finding No. 2];
  - b. permeability and transmissivity of underlying soils [Finding No. 14];
  - c. depth to groundwater and variations in depth to groundwater [Finding No. 14];
  - d. background quality of groundwater [Finding No. 16];
  - e. current and anticipated use of groundwater [Finding No. 17];
  - f. annual precipitation [Finding No. 13];
  - g. potential for ground rupture [Finding No. 12]; and
  - h. potential for rapid geologic change [Finding Nos. 12 and 13].

## **WASTES AND THEIR CLASSIFICATION**

7. The discharger proposes to place the following wastes in the WMU, although prior to

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the placement of wastes in WMU II, further waste characterization and waste-waste/waste-liner compatibility analyses will be completed:

- a. Designated Class II sludges from the TWTP and wastewater treatment oil separation system as detailed in the "Report of Waste Discharge for Unit II", and classified as "nonhazardous solid wastes" or "inert wastes" using the criteria set forth in Chapter 15.

## **SITE DESCRIPTION**

8. The site is located in portions of the Ranchos los Medanos section of Township 2 North, Range 1 East, Mount Diablo Baseline and Meridian, and covers an area that approximates one square mile.
9. The site is located in a transitional depositional environment between the Coast Range and Great Valley physiographic provinces, along the southern shore of the New York Slough, east of Suisun Bay. WMU II is located approximately 1200 feet south of the slough which joins the Sacramento River and San Joaquin Rivers. The site exhibits generally flat topography with a gentle slope toward the north-northwest. Sediments beneath the site are derived from alluvial outwash from the Coast Range hills south of the site and from the fluvial influence of the Sacramento-San Joaquin River system immediately north of the site. This transitional setting is reflected in the interbedded fine- and coarse-grained sediments beneath the site.

## **GEOLOGY**

10. The surface and subsurface geology beneath WMU II was evaluated based on the results of several geologic and hydrogeologic investigations. These investigations included literature reviews, installation of 10 groundwater monitoring wells and five soil borings (totalling approximately 408.5 feet of drilling), and chemical and geotechnical analyses of soil samples from these borings. Based on this evaluation, the stratigraphy and structure in the vicinity of WMU II is summarized in the sections below. The liner and monitoring systems outlined in this order include design components specifically engineered for geologic and hydrogeologic conditions beneath WMU II.
11. Stratigraphy:

WMU II is underlain by discontinuous, lenticular, sandy clays with subordinate clayey and silty sands. These units appear to have highly variable horizontal and vertical continuity.

Boring log data from the former pond area, approximately 800 feet east of WMU II and surrounding locations, reflect a soil horizon ranging in thickness from 1.5 to 3.0 feet, and comprised of clay loam. The soils grade into alluvial sediments comprised of sandy clays, silts, poorly-graded and silty gravels, clayey and silty sands, and clay units. The discontinuous, lenticular sediment layers with limited variable horizontal and vertical extent in this area are similar in nature to the sediments beneath WMU II. Bedrock is estimated to be at an depth of between 400 and 800 feet at the site, and dips steeply to the north. Outcrops of Tertiary-aged shales, sandstones, and conglomerates from the Tehama formation are exposed in coastal hills, approximately two miles south of the site.

12. Structure:

The primary structural element evaluated in the vicinity of WMU II area is Holocene faulting. Holocene active faults are those which show evidence of displacement in the past 11,000 years. There are no known Holocene-active faults within the limits of the proposed WMU. The closest known Holocene fault is the Clayton Fault, located approximately 5.3 miles south of the site. The nearest potentially active fault is the Pittsburg Fault located approximately one mile east of the WMU.

## **SURFACE WATER and GROUNDWATER**

13. Surface Water:

Two prominent surface water features are present in the vicinity of WMU II; they are the New York Slough to the north, and Kirker Creek and its tributary drainages to the south. The New York Slough is approximately 750 feet wide and 40 feet deep along the northern boundary of the property. Flow through the slough is due primarily to tidal currents and outflow from the San Joaquin River.

Kirker Creek flows in a northeasterly direction from the hills to the south, until it contacts the southern Pittsburg Facility property boundary, where it is diverted eastward. Kirker Creek drains the coastal hills to the south of the site

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and the basin encompasses an estimated area of 6,700 acres. The total available water volume for evaporation and surface flow from the Kirker Creek drainage basin is approximately 8,100 acre-feet per year. The diversionary channel along the southern property boundary is unlined and is located hydrologically upgradient from WMU II, indicating that Kirker Creek is probably a source of recharge to groundwater.

The mean annual precipitation for the site was calculated to be approximately 12.5 inches per year. The 100 year, 24-hour storm event was estimated to be 3.90 inches and the probable maximum precipitation is 12.56 inches. The mean annual evaporation was estimated to be 72 inches per year.

14. Groundwater:

The site is located in the Pittsburgh groundwater basin and recharge to this basin is derived primarily from streambed percolation and the New York Slough. The following two primary water-bearing units have been identified in the vicinity of the site:

- An upper water-bearing zone;
- A main sand and gravel aquifer

The upper saturated unit varies in depth from 6 to 70 feet and is comprised of silts and silty clays interbedded with silty and clayey sand lenticular deposit, originating from a mixed fluvial and alluvial deposits, and generally quite discontinuous in lateral extent. This hydrostratigraphic unit represents the upper aquifer at the site and is separated from the lower aquifer unit by a silty clay aquiclude that ranges in thickness from 24 to 36 feet. Water level measurements indicate that the upper aquifer maintains a low hydraulic gradient of 0.002 feet/foot toward the north.

The second saturated unit beneath the site is the main sand and gravel aquifer, and is probably fluvial in origin. The main aquifer is confined, averages 70 feet in thickness, and occurs at depths of 90 to 100 feet below ground surface at the site. Aquifer tests in the pond area, approximately 800 feet to the east of WMU II, indicate that the two aquifers are not hydrologically connected.

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Based on present ground surface elevations, depths to groundwater beneath WMU II range from approximately 6 to 13 feet at the highest measured level during the recent drought.

15. Groundwater degradation:

Groundwater beneath the existing WMU I and the proposed WMU II has been degraded somewhat by the presence of the existing, unlined WMU. Historical groundwater monitoring data downgradient of the existing WMU I shows Total Dissolved Solids (TDS) concentrations as high as 6,680 mg/L.

Groundwater beneath the former pond, located approximately 800 feet east of WMU II, has TDS concentrations as high 6,800 mg/L and manganese concentrations as high as 2.9 mg/L. Oil and grease, phenol, and some semivolatile compounds have also been infrequently detected in low level concentrations.

16. Background water quality:

Measurements of groundwater characteristics upgradient from both the existing WMU I and the proposed WMU II are based on a monitoring well located approximately 900 feet southeast of WMU II. This well shows TDS values ranging between 1,700 and 2,480 mg/L.

Few metals were detected above trace concentrations in upgradient groundwater analysis.

17. Beneficial Uses: The beneficial uses of the groundwater in the vicinity of the site include:

- Limited domestic supply
- Limited agricultural supply
- Industrial supply.

The beneficial uses of Kirker Creek and the New York Slough are as follows:

- Water contact recreation
- Non-water contact recreation
- Fish migration and spawning

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- Wildlife habitat
- Estuarine and marine habitat
- Industrial water supply
- Navigation
- Commercial and sport fishing

## **GROUNDWATER MONITORING SYSTEM**

18. Based on stratigraphic and hydrogeologic conditions at the site, a Leakage Detection System is considered to be the most effective method of monitoring potential discharges from WMU II. The Leakage Detection System will be incorporated within the liner system, and will serve as the equivalent to an extensive groundwater monitoring system, and meets requirements for monitoring systems as stated in Article 5 of Chapter 15. This system is located immediately beneath the WMU II Leachate Collection and Removal System, and will serve to provide immediate detection of leakage from the unit, prior to its potential impact on groundwater quality.

## **CALIFORNIA ENVIRONMENTAL QUALITY ACT**

19. The City of Pittsburg Planning Commission has certified a final Mitigated Negative Declaration in accordance with the California Environmental Quality Act (CEQA, Public Resources Code Section 21000 et. seq.). The proposed landfill and landfill activity could impact groundwater quality unless appropriate mitigation measures are taken. The Final Mitigated Negative Declaration found that potential impacts to the surface water could occur as a result of:

- Changes in groundwater recharge, drainage pattern, or rate and amount of surface flow.

These potential impacts are addressed through specified minimum design measures for containment of waste, separation from ground and surface waters and surface and groundwater monitoring, as specified in this order.

## COMMENTS

20. The Board adopted a revised Water Quality Plan for the San Francisco Bay Basin (Basin Plan) on December 9, 1991. This Order implements the water quality objectives stated in that plan and its subsequent amendments.
21. The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge, and has provided them with an opportunity to submit their written views and recommendations.
22. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED pursuant to authority in Section 13263 of the California Water Code, the discharger, its agents, successors and assigns may discharge waste at WMU II providing compliance is maintained with regulations adopted under Division 7 of the California Water Code and with the following:

### A. PROHIBITIONS

1. The disposal of waste shall not create a condition of pollution or nuisance as defined in Section 13050 (1) and (m) of the California Water Code.
2. Wastes shall not be placed in or allowed to contact ponded water from any source whatsoever.
3. Wastes shall not be disposed of in any position where they can be carried from the disposal site and discharged into waters of the State or of the United States.
4. Leachate from wastes and ponded water containing leachate or in contact with waste shall not be discharged to waters of the State or of the United States.
5. Unspecified wastes, municipal wastes, and hazardous wastes, as defined in Sections 2521 and 2522 of Chapter 15 **shall not** be deposited or stored at this site. Only dewatered sludges from the TWTP and dewatered sludges from the wastewater treatment oil separation system as defined in the "Report of Waste Discharge for Unit II" will be disposed of in WMU II.



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6. The discharger **shall not** discharge wastes which have the potential to reduce or impair the integrity of the containment structures or which, if commingled with other wastes in the unit, could produce chemical reactions that create heat or pressure, fire or explosion, toxic by-products, or reaction products which in turn:
  - a. require a higher level of containment than provided by the unit,
  - b. are "restricted hazardous wastes", or
  - c. impair the integrity of the containment structures.
7. Construction of the containment features of this WMU must be in compliance with this Order and Chapter 15. Wastes shall not be placed in any area of the WMU until the Executive Officer has received and approved written certification by a California registered civil engineer or certified engineering geologist that the structures have been constructed in accordance with those design plans.
8. The discharger, or any future owner or operator of this site, shall not cause the following conditions to exist in waters of the State at any place outside the waste management facility:
  - a. Surface Waters
    - Floating, suspended, or deposited macroscopic particulate matter or foam.
    - Bottom deposits or aquatic growth.
    - Adversely alter temperature, turbidity, or apparent color beyond natural background levels.
    - Visible, floating, suspended or deposited oil or other products of petroleum origin.
    - Toxic or other deleterious substances to be present in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations.

b. Groundwater

The groundwater shall not be degraded as a result of the waste disposal operation.

B. SPECIFICATIONS

1. All reports pursuant to this Order shall be prepared under the supervision of a registered civil engineer, California registered geologist or certified engineering geologist.
2. Water used during disposal operations shall be limited to dust control, fire suppression and earthfill moisture conditioning.
3. The site shall be protected from any washout or erosion of wastes from inundation which could occur as a result of a 100-year, 24 hour precipitation event, or as the result of flooding with a return frequency of 100 years.
4. Hazardous wastes, unspecified designated wastes, municipal wastes, and infectious wastes shall not be disposed of at this landfill. Only specified designated wastes may be disposed of at this landfill provided that all regulations and provisions of the California Integrated Waste Management Board, California Department of Toxic Substance Control, local health and land use agencies' requirements are complied with.
5. The discharger shall design, install and operate a blanket-type leachate collection and removal system for the base of the landfill expansion, such that less than 1 foot of hydraulic head remains on any portion of the liner where waste has been placed.

The leachate collection and recovery system shall be designed and operated to function without clogging, (per Sect. 2543.d), and inspected quarterly for excess fluid. The design shall be equipped with an accessible clean-out of the lateral drain(s).

6. The landfill will be constructed in three phases. Cells 1 and 2 will be constructed during Phase I, with waste being placed in Cell I, and Cell 2 serving as a leachate collection basin. Phase II will include the construction of Cell 3, similar to Cell 1, and will be completed approximately 9 years after the Phase I construction. Wastes

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will be placed in Cell 3 after Cell 1 reaches design capacity. A leachate containment system will be constructed during Phase III, following which Cell 2 will be filled with waste. During the filling of Cell 2, landfill leachate shall be discharged to an above-ground, secondarily contained, enclosed tank.

Recirculation of leachate and gas condensate will be limited to areas of the landfill equipped with a composite liner and leachate collection and recovery system and will not be placed directly on waste.

7. The landfill shall be designed and constructed in compliance with Chapter 15 and this Order. The final design plans shall be submitted to the Executive Officer for review and approval and shall include, but not be limited to, the engineered design plans for the WMU, the construction specifications, a construction quality assurance (QA/QC) plan, and a detailed sampling and analysis plan for the discharge monitoring program. The final construction report shall include, but not be limited to, construction record drawings (as-built drawings) for the WMU, a QA/QC report with a written summary of the QA/QC program and all test results and analyses, and a certification as described in Specification No. B.1 .
8. The discharger shall ensure that the foundations of the landfill, and the waste containment features which control leachate, surface drainage, and erosion for this unit, are constructed and maintained to withstand conditions generated during a maximum probable earthquake event.
9. As part of the final design plans, the discharger must evaluate the long-term static and pseudo-static stability of the final landfill slopes. The long-term minimum acceptable factor of safety for static slope stability with this WMU will be 1.5. The long-term minimum acceptable factor of safety for pseudo-static slope stability with this WMU will be within the range of 1.0-1.5. In addition, the discharger must design the groundwater subdrain system to accommodate contribution due to pore pressure increase in the underlying sediments resulting from hydraulic loading created by the presence of the WMU.
10. As portions of the landfill are closed, the exterior surfaces shall be graded to promote lateral runoff of precipitation and prevent ponding. The final cover for the landfill will have a minimum slope of three percent plus an allowance for subsidence. The final cover shall be a minimum of 3.5 feet thick to include, 1.5 feet of structural base, 1 foot of a low permeability clay barrier, and 1 foot of protective soil cover. The final cover must also meet all other applicable requirements as described in this order and Article 8 of Chapter 15.

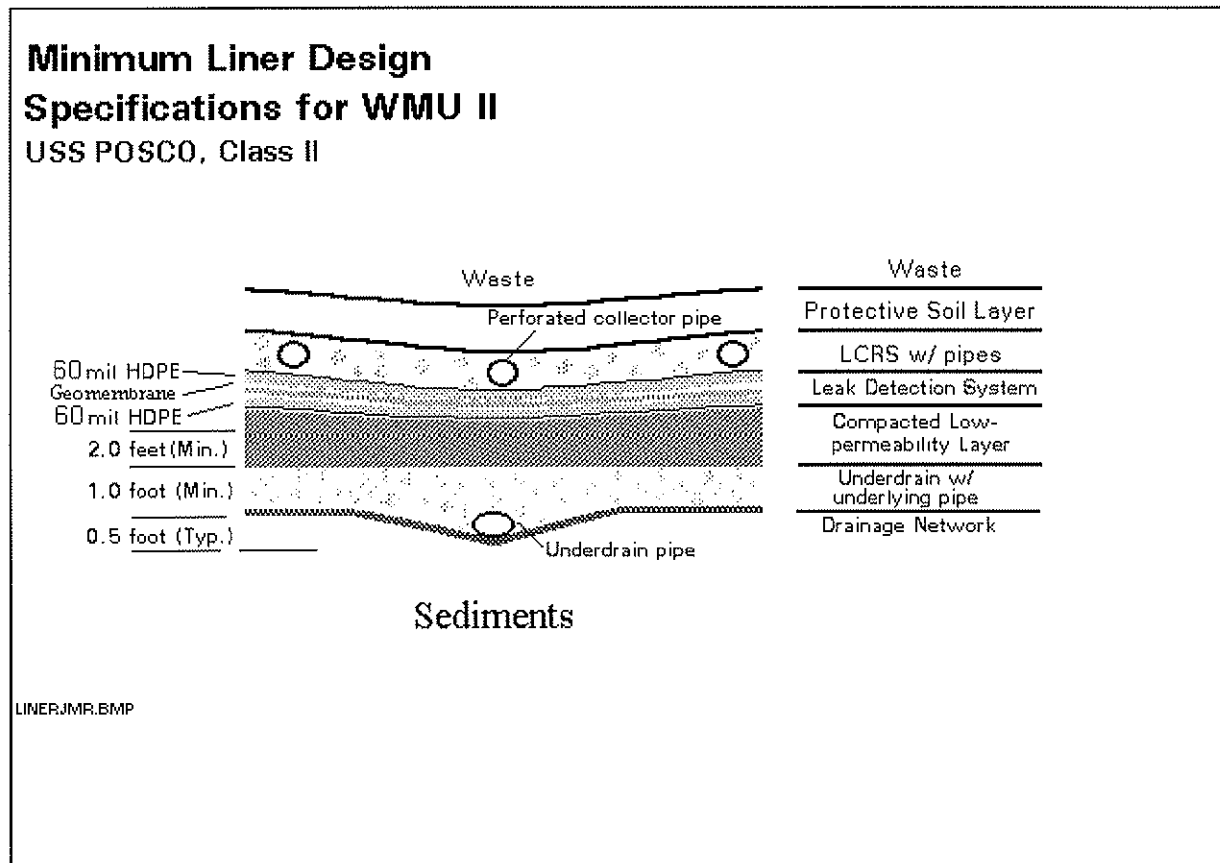
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11. The discharger shall operate the waste management facility so as to prevent a statistically significant difference to exist between water quality of the background water and water passing the point of compliance as provided in Section 2550.5, Article 5 of Chapter 15.
12. The concentrations of indicator parameters or waste constituents in waters passing through the point of compliance, as defined in Section 2550.2 of Article 5, Chapter 15, shall not exceed the "Water Quality Protection Standard" (WQPS), of the Discharge Monitoring Program proposed by the discharger pursuant to Provision C.2 of this Order and subsequently issued by the Executive Officer.
13. Pursuant to Section 2550.3 of the Revised Article 5, Chapter 15, these Waste Discharge Requirements specify the constituents of concern to which the water quality protection standard of Section 2550.2 of Article 5 applies. Constituents of concern are the waste constituents, reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the WMU.
14. In the event of a release of a constituent of concern beyond the Point of Compliance, the site begins a Compliance Period (Sect. 2550.6(a)). During the Compliance Period, the discharger shall perform an Evaluation Monitoring Program and a Corrective Action Program.
15. The discharger shall install any reasonable additional groundwater and leachate monitoring devices required to fulfill the terms of any Discharge Monitoring Program issued by the Executive Officer.
16. Interim cover shall be maintained over all waste, at all times, except for the active face area of the disposal operations, or as provided for by the performance standards adopted by the California Integrated Waste Management Board.
17. Methane and other landfill gases shall be adequately vented, removed from the landfill units, or otherwise controlled to minimize the danger of explosion, adverse health effects, nuisance conditions, or the impairment of beneficial uses of water due to migration through the vadose (unsaturated) zone.

A landfill gas collection system will not be required for WMU II, if the discharger can provide data for approval by the executive officer, that the waste streams approved for disposal in WMU II will not generate any significant gaseous phase during decomposition or other reaction.

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18. This Board considers the property owner and site operator to have continuing responsibility for correcting any problems which arise in the future as a result of this waste discharge or related operations during the operational and postclosure maintenance periods.
19. The discharger shall maintain all devices or designed features, installed in accordance with this Order such that they continue to operate as intended without interruption.



20. The discharger shall provide a minimum of two surveyed permanent monuments near the landfill from which the vertical and horizontal position of wastes, containment structures, and monitoring facilities can be determined throughout the operational and post-closure maintenance periods. These monuments shall be installed by a licensed land surveyor or registered civil engineer.

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21. The Board shall be notified immediately of any slope failure occurring in the WMU. Any failure which potentially compromises the integrity of containment structures or the landfill shall be promptly corrected after approval of the method and schedule by the Executive Officer.
22. The discharger shall notify the Regional Board at least 180 days prior to beginning any intermediate or final closure activities. This notice shall include a statement that all closure activities will conform to the most recently approved closure plan and that the plan provides for site closure in compliance with all applicable regulations.
23. The discharger shall submit, within 90 days after the closure of any portion of the landfill, a closure certification report which documents that the area has been closed according to the requirements of this Order and Chapter 15. The discharger shall certify under penalty of perjury that all closure activities were performed in accordance with the most recently approved closure plan and in accordance with all applicable regulations.
24. The discharger shall comply with all applicable provisions of Chapter 15 that are not specifically referred to in this Order.

**DESIGN OF WASTE MANAGEMENT UNIT**

25. WMU II is situated where geologic and hydrogeologic conditions alone do not ensure against impairment of groundwater. Chapter 15 requires that there be a minimum 5 foot separation between waste and groundwater, Section 2530(c). The site does not meet this requirement because shallow groundwater exists beneath the proposed unit and may rise in response to increased pore pressure as the WMU is filled. The proposed design (schematically shown below) is intended to address this condition by including: (1) a groundwater subdrain to intercept groundwater beneath the unit and convey it for discharge to the stormwater retention basin located adjacent to WMU II or to the TWTP, based on analysis of discharge, and (2) by including a composite liner and leachate collection system to assure that wastes are contained within the landfill.

Section 2510(b) of Chapter 15 allows consideration of alternatives to the 5 foot separation requirement. The discharger has requested an exemption to the five foot separation of wastes and the highest anticipated elevation of groundwater, on the grounds that the 5 foot separation is unreasonable and unnecessarily burdensome, and will cost substantially more than the proposed engineered alternative which meets the

performance standards of Chapter 15 and should provide equivalent water quality protection. The proposed engineered alternative to the 5 foot separation is the groundwater subdrain system and the composite liner. The subdrain system has been designed to prevent the groundwater level from extending into the base liner.

The Board finds that the proposed containment design is a satisfactory alternative to the 5 foot separation requirement of Section 2530(c) in accordance with the criteria of Section 2510. Compliance with the 5 foot separation specification of Chapter 15 is impractical because of the excessive cost to place the additional fill which would not promote attainment of applicable performance standards compared to the proposed design. The Board finds that the proposed design is consistent with the performance goal of maintaining a separation between groundwater and waste and it affords equivalent or superior protection against water quality impairment.

26. The landfill base shall be graded and compacted in preparation for construction and installation of the Groundwater subdrain, Leakage Detection System, and composite liner system. Construction shall include the following components, from the bottom:
  - a. A one foot thick (minimum) groundwater subdrain constructed of granular materials with a minimum permeability of  $3 \times 10^{-2}$  cm/sec. To increase the flow efficiency, perforated high density polyethylene (HDPE) pipes will be placed at the low points along the bottom of this layer and beneath the subdrain blanket. Bottom slopes of the subdrain will be a minimum of 2% along the fall line, and drain toward the HDPE pipe from all points. The subdrain shall be designed to allow maximum inflow that exceeds highest hydraulic conductivity value of surrounding sediments and ensures that the overlying liner system will not be impacted by a significant rise in groundwater elevations.
  - b. The composite liner system will consist of a minimum two feet of a low permeability ( $1 \times 10^{-7}$  cm/sec) compacted clay layer overlain by a Leachate Collection and Removal System.
  - c. The leakage detection/liner system consists, at a minimum, of two 60 mil HDPE liners above the compacted clay liner with a geomembrane drainage net placed in between the HDPE synthetic liners to serve as a leakage detection system. Drainage from this system will be directed to a collection pipe which in turn, will gravity drain into the leachate holding facility.

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- d. A blanket-type Leachate Collection and Removal System (LCRS) will be placed above the 60 mil HDPE liner. The LCRS will consist of perforated HDPE pipes placed within a one foot thick highly permeable drainage layer. The pipes will collect leachate from the drainage layer and direct it towards a main leachate collection header which in turn will gravity drain into a leachate holding tank. To protect the LCRS, a nonwoven geotextile and a one foot thick operations layer composed of on-site materials will be placed above the LCRS drainage layer. Both bottom and top surfaces of the LCRS will have a minimum 2% slopes along the fall line.
27. The WMU shall also include the following design features and sequence of construction and operation:
- a. WMU II will be constructed in three phases. Phase I will include the construction of Cells 1 and 2. During Phase I, Cell 2 will be fitted with an additional 60 mil layer of HDPE above the protective layer. Cell 3 will be constructed during Phase II, and will approximate the same configuration as Cell 1. A leachate containment tank will be constructed during Phase III.
  - b. Cell 1 will be filled first, followed by Cell 3, and then Cell 2. While Cell 1 and 3 are receiving waste, Cell 2 will serve as the leachate containment structure. Leachate from the LCRS and Leakage Detection System, generated during the filling of Phases 1 and 3, will be contained in Cell 2. When Cell 3 reaches capacity, Cell 2 will begin to receive waste and any leachate generated will be routed to the leachate containment tank. At any time during the operation of the WMU, leachate may be treated at the TWTP, but may not be stored at any interim location, except as noted in this paragraph.
  - c. The floor of each cell will be divided into subunits by soil berms placed in conjunction with the protective soil layer. These berms will control surface water runoff within the unit. Surface water runoff originating within any bermed subunit containing no waste will be diverted from contacting waste and routed to the Stormwater Retention Basin or the TWTP. Runoff originating from bermed portion of cell containing any waste will not be discharged to the Stormwater Retention Basin and will be managed as leachate.
28. Prior to placement of waste in the WMU II, waste characterization testing will be conducted to determine multiple waste stream and waste-liner compatibility. Results of these analyses will be submitted to the Board prior to the placement of wastes in WMU II.



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29. All waste streams will be sampled annually to ensure that the waste characterization and monitoring parameters are consistent and current with waste being placed in the WMU. Results of these analyses will be submitted to the Board, along with other pertinent sampling information.

## MONITORING PROGRAM

30. The discharger is proposing to conduct an initial one-year discharge monitoring program prior to submitting a proposed Water Quality Protection Standards and a revised Discharge Monitoring Program. Provision C.2. of this Order requires the discharger to submit proposed Water Quality Protection Standards and a revised Discharge Monitoring Program within 18 months after the date that WMU II begins accepting waste. A summary of the initial Discharge Monitoring Program (See Attachment A) follows:
  - a. Groundwater will be monitored through the use of a Leak Detection System in conjunction with a limited monitoring well system as identified in the Self Monitoring Plan, included as an attachment to this Order.
  - b. Groundwater Monitoring will be conducted at a frequency, and analyzed for the parameters outlined in the Self Monitoring Plan.
  - c. Discharge from the WMU II groundwater subdrain and Leak Detection System will be monitored at a frequency, and analyzed for the parameters outlined in the Self Monitoring Plan.

## C. PROVISIONS

1. The discharger shall comply with all Prohibitions, Specifications, and Provisions of this Order, immediately upon adoption of this Order or as provided below.
2. The discharger shall submit a report that evaluates and proposes a **Water Quality Protection Standard (WQPS)** and a revised Discharge Monitoring Program for the site, pursuant to Article 5 of Chapter 15. The WQPS to be proposed by the discharger shall consist of the five elements required by Article 5; 1) a list of constituents to be monitored for; 2) the concentration

limits to be used in analysis; 3) the Point Of Compliance; 4) the addition of monitoring points; and 5) the Compliance Period in the event of a detected leak.

**REPORT DUE DATE:** within 18 months after the date that the WMU begins accepting waste.

3. The discharger shall submit a detailed **Post Earthquake Inspection and Corrective Action Plan** acceptable to the Executive Officer to be implemented in the event of any earthquake generating ground shaking of Richter Magnitude 7 or greater at or within 30 miles of the landfill. The report shall describe the containment features, and ground water monitoring and leachate control facilities potentially impacted by the static and seismic deformations of the landfill. The plan shall provide for reporting results of the post earthquake inspection to the Board within 72 hours of the occurrence of the earthquake. Immediately after an earthquake event causing damage to the landfill structures, the corrective action plan shall be implemented and this Board shall be notified of any damage.

**REPORT DUE DATE:** within three months of adoption of this Order.

4. The discharger shall submit to this Board and, unless otherwise exempted, to the California Integrated Waste Management Board, evidence of an **Irrevocable Closure Fund or provide other means to ensure closure and postclosure maintenance of the waste management unit**, pursuant to Section 2580(f) of Chapter 15. The Closure Fund must provide sufficient funds to properly close the landfill and for the post-closure monitoring, leachate management, and maintenance of the site. For the purposes of planning the amount of the fund, the discharger shall assume a post-closure period of at least 30 years. However, the post-closure maintenance period shall extend as long as the wastes pose a threat to water quality.

**REPORT DUE DATE:** within three months of adoption of this Order.

5. The discharger shall submit **Final Construction Details (FCD)** acceptable to the Executive Officer pursuant to the specifications of this Order. These details will be provided to the Board in two deliverables as follows:
  - a. A **Certification Letter** will be submitted to the Board for approval at the completion of construction of WMU II. This letter will certify that

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the WMU was constructed in compliance with the this Order. This certification letter must be approved by the Board prior to the placement of any wastes in WMU II. The Board may give conditional approval to placement of wastes in WMU II, contingent on the discharger meeting the conditions detailed in Provision C.5.b. The discharger may place wastes in the landfill following approval of the Certification Letter.

- b. The **FCD** should provide as-built drawings and construction details for the various components of the WMU, including but not limited to detailed specifications for construction of groundwater removal system, composite liners, leak detection system, and leachate collection and removal systems and should include Quality Assurance & Quality Control Procedures (QA/QC) and testing results for all aspects of construction and installation. These construction details should include detailed specifications regarding the sequence of construction of the various segments of the project, and provide sufficient detail about how the various systems of the WMU will interface structurally. The Final Construction Details must be determined to be consistent with this Order by the Executive Officer prior to final approval for acceptance of wastes in WMU II.

**REPORT DUE DATE:** The Certification letter shall be submitted to and approved by the Board prior to the acceptance of any waste into the WMU. The Final Construction Details report will be due to the Regional Board 45 days after approval of the Certification Letter by the Board.

6. The discharger shall submit a **Contingency Plan** to be instituted in the event of a leak or spill from the leachate facilities. The discharger shall give immediate notification to the San Francisco Bay Regional Water Quality Control Board, the Local Enforcement Agency (LEA), and the California Department of Toxic Substance Control. The discharger shall initiate its corrective action plan to stop and contain the migration of pollutants from the site.

**REPORT DUE DATE:** within three months of adoption of this Order.

7. The discharger shall file with the Regional Board Discharge Monitoring Reports performed according to any **Discharge Monitoring Program** issued by the Executive Officer.

Waste Discharge Requirements  
USS-POSCO Industries WMU II  
Order No. 94-040

8. The discharger shall remove and relocate any wastes which are discharged after the date of adoption of this Order in violation of these requirements.
9. The discharger shall file with this Board a report of any material change or proposed change in the character, location, or quantity of the waste discharge. For the purpose of these requirements, this includes any proposed change in the boundaries of the disposal areas or the ownership of the site.
10. The discharger shall immediately notify the Board of any event which in any way might compromise the integrity of the waste, leachate, or gas containment facilities or precipitation and drainage control structures.
11. The discharger shall maintain a copy of this Order at the site so as to be available at all times to site operating personnel.
12. The discharger shall permit the Board or its authorized representative, upon presentation of credentials:
  - a. Immediate entry upon the premises on which wastes are located or in which any required records are kept.
  - b. Access to copy any records required to be kept under the terms and conditions of this Order.
  - c. Inspection of any treatment equipment, monitoring equipment, or monitoring method required by this Order or by any other California State Agency.
  - d. Sampling of any discharge or ground water governed by this Order.
13. These requirements do not authorize commission of any act causing injury to the property of another or of the public; do not convey any property rights; do not remove liability under federal, state or local laws; and do not authorize the discharge of wastes without appropriate permits from other agencies or organizations.
14. This Order is subject to Board review and updating, as necessary, to comply with changing State or Federal laws, regulations, policies, or guidelines; changes in the Board's Basin Plan; or changes in the discharge characteristics.

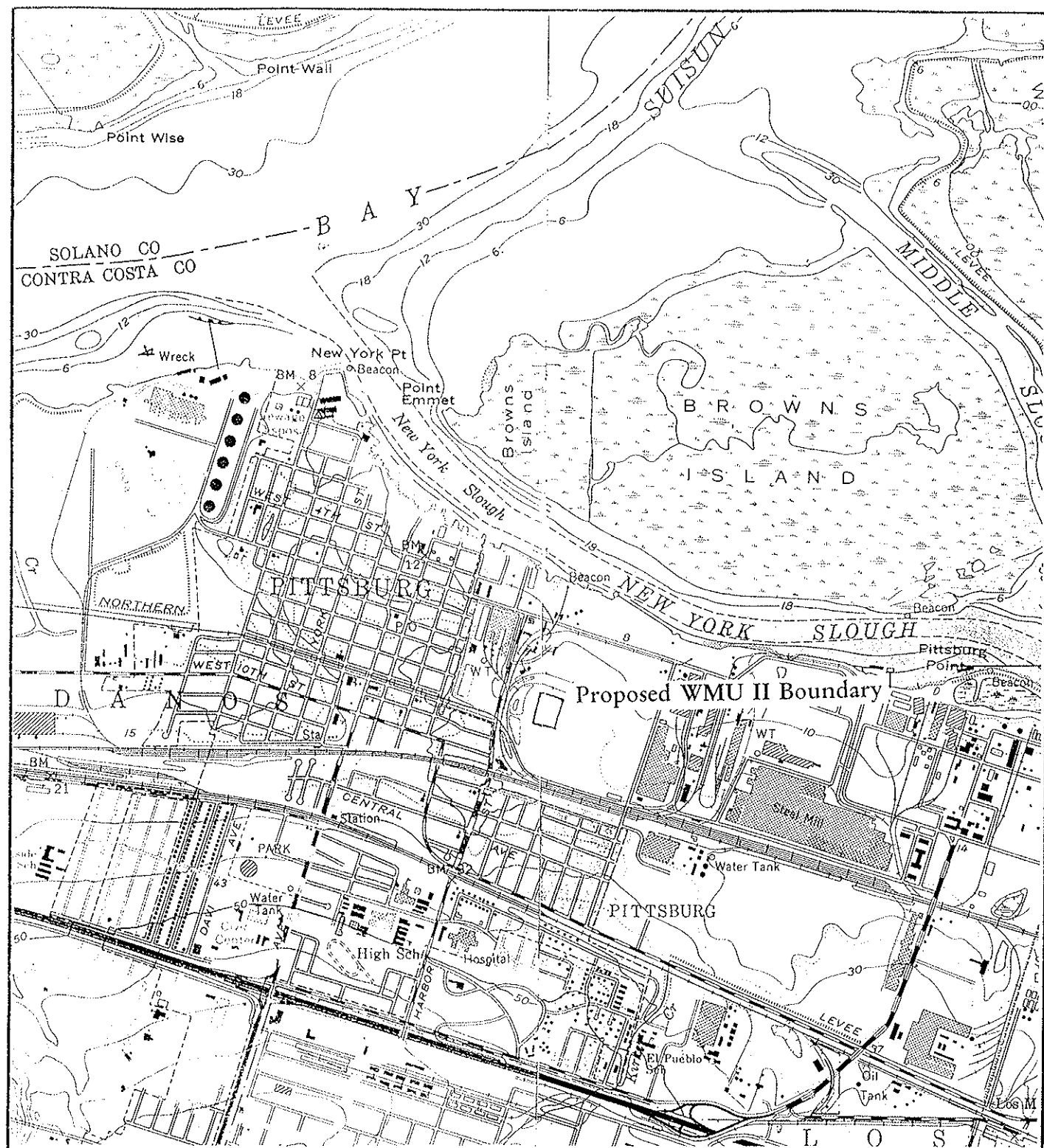
Waste Discharge Requirements  
USS-POSCO Industries WMU II  
Order No. 94-040

I, Steven R. Ritchie, Executive Officer, do hereby certify that the foregoing is a full, complete, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on March 16, 1994 .

A handwritten signature in dark ink, appearing to read 'S. Ritchie', is written over a horizontal line.

Steven R. Ritchie  
Executive Officer

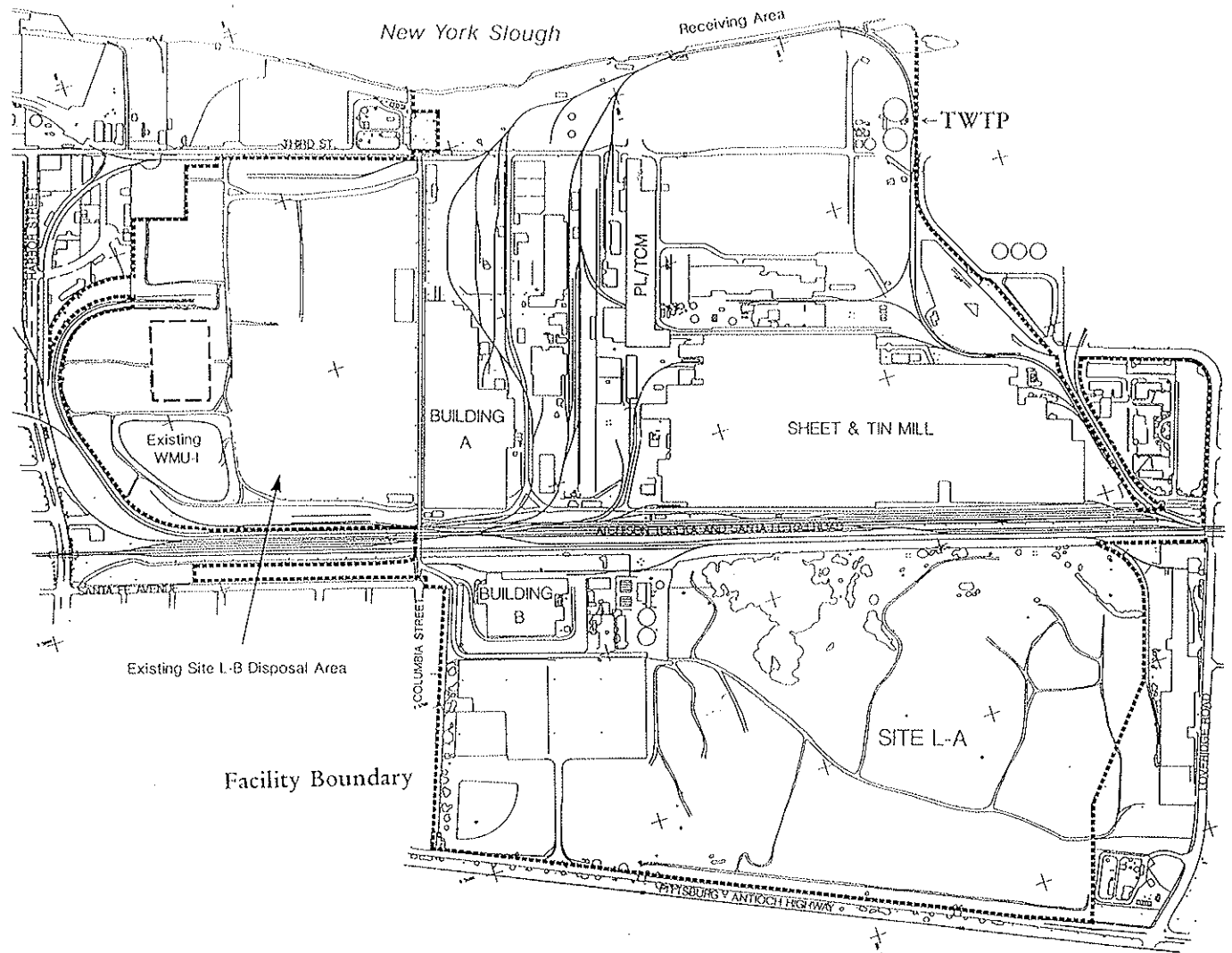
Attachments: Figure 1. Site Location Map  
Figure 2. Facility Map  
Discharge Monitoring Program



STATE OF CALIFORNIA  
REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

Figure 1  
Site Location Map  
Waste Management Unit II  
USS-POSCO Industries, Pittsburg Facility  
Contra Costa County

DRAWN BY: JMC DATE: 2/94 DRWG. NO.



WTP - Terminal Wastewater Treatment Plant

STATE OF CALIFORNIA  
REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

Figure 2  
Facility Map  
Waste Management Unit II  
USS-POSCO Industries, Pittsburg Facility  
Contra Costa County

DRAWN BY: JMG DATE: 2/94 DRWG. NO.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

DISCHARGE MONITORING PROGRAM

FOR

USS-POSCO PITTSBURG FACILITY  
WASTE MANAGEMENT UNIT II  
CLASS II SOLID WASTE DISPOSAL SITE

CONTRA COSTA COUNTY

ORDER NO. 94-040

CONSISTS OF

PART A

AND

PART B



## PART A

### A. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16. This Discharge Monitoring Program is issued in accordance with Provision 7 of Regional Board Order No. 94-040.

The principal purposes of a discharge monitoring program are: (1) to document compliance with waste discharge requirements and prohibitions established by the Board, (2) to facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of standards of performance, and toxicity standards, (4) to assist the discharger in complying with the requirements of Article 5, Chapter 15 as revised July 1, 1991.

### B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed according to the most recent version of EPA Standard Methods and in accordance with a sampling and analysis plan approved by the Regional Board.

Water and waste analysis shall be performed by a laboratory approved for these analyses by the State of California. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board.

All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

### C. DEFINITION OF TERMS

1. A grab sample is a discrete sample collected at any time.
2. Receiving waters refers to any surface water which actually or potentially receives surface or groundwater which pass over, through, or under waste materials or contaminated soils. In this case the groundwater beneath and adjacent to the landfill areas, the surface runoff from the site,
3. Standard observations, at the time of monitoring or in the event of unanticipated discharge, refer to:
  - a. Receiving Waters
    - 1) Floating and suspended materials of waste origin: presence or absence, source, and size of affected area.

- 2) Discoloration and turbidity: description of color, source, and size of affected area.
  - 3) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
  - 4) Evidence of beneficial use: presence of water associated wildlife.
  - 5) Flow rate.
  - 6) Weather conditions: wind direction and estimated velocity, total precipitation during the previous five days and on the day of observation.
- b. Perimeter of the waste management unit.
- 1) Evidence of liquid leaving or entering the waste management unit, estimated size of affected area and flow rate. (Show affected area on map)
  - 2) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
  - 3) Evidence of erosion and/or daylighted waste.
- c. The waste management unit.
- 1) Evidence of ponded water at any point on the waste management facility.
  - 2) Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
  - 3) Evidence of erosion and/or daylighted waste.
  - 4) Standard Analysis (SA) and measurements are listed on Table A-1 (attached)

#### D. SAMPLING, ANALYSIS, AND OBSERVATIONS

The discharger is required to perform sampling, analyses, and observations in the following media:

1. Groundwater per Section 2550.7(b) and
2. Surface water per Section 2550.7(c)

and per the general requirements specified in Section 2550.7(e) of Article 5, Chapter 15.

E. RECORDS TO BE MAINTAINED

Written reports shall be maintained by the discharger or laboratory, and shall be retained for a minimum of five years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Board. Such records shall show the following for each sample:

1. Identity of sample and sample station number.
2. Date and time of sampling.
3. Date and time that analyses are started and completed, and name of the personnel performing the analyses.
4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used.
5. Calculation of results.
6. Results of analyses, and detection limits for each analysis.

F. REPORTS TO BE FILED WITH THE BOARD

1. Written annual detection monitoring reports shall be filed by the 31st day of January following the reporting period. The annual report shall be filed and comprised as indicated below:

- a. Letter of Transmittal

A letter transmitting the essential points in each report should accompany each submittal. Such a letter shall include a discussion of any requirement violations found during the last report period, and actions taken or planned for correcting the violations. If the discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory. If no violations have occurred in the last report period this shall be stated in the letter of transmittal. Monitoring reports and the letter transmitting the monitoring reports shall be signed by a principal executive officer at the level of vice president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.

- b. Each monitoring report shall include a compliance evaluation summary. The summary shall contain:
  - 1) A graphic description of the velocity and direction of groundwater flow under/around the waste management unit, based upon the past and present water level elevations and pertinent visual observations. This should be presented in both map and tabular forms.
  - 2) The method and time of water level measurement, the type of pump used for purging, pump placement in the well; method of purging, pumping rate, equipment and methods used to monitor field pH, temperature, and conductivity during purging, calibration of the field equipment, results of the pH, temperature conductivity and turbidity testing, well recovery time, and method of disposing of the purge water.
  - 3) A written discussion of the groundwater analyses indicating any change in the quality of the groundwater.
  - 4) Type of pump used, pump placement for sampling, a detailed description of the sampling procedure; number and description of equipment, field and travel blanks; number and description of duplicate samples; type of sample containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other observations.
- c. A comprehensive discussion of the compliance record, and the corrective actions taken or planned which may be needed to bring the discharger into full compliance with the waste discharge requirements.
- d. A map or aerial photograph shall accompany each report showing observation and monitoring station locations.
- e. Laboratory statements of results of analyses specified in Part B must be included in each report. The director of the laboratory whose name appears on the laboratory certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Board.
  - 1) The methods of analyses and detection limits must be appropriate for the expected concentrations. Specific methods of analyses must be identified. If methods other than EPA approved methods or Standard Methods are used, the exact methodology must be submitted for review and approved by the Executive Officer prior to use.

- 2) In addition to the results of the analyses, laboratory quality assurance/quality control (QA/QC) information must be included in the monitoring report. The laboratory QA/QC information should include the method, equipment and analytical detection limits; the recovery rates; an explanation for any recovery rate that is less than 80%; the results of equipment and method blanks; the results of spiked and surrogate samples; the frequency of quality control analysis; and the name and qualifications of the person(s) performing the analyses.
- f. An evaluation of the effectiveness of the leachate detection, monitoring, control, and removal facilities, which includes an evaluation of leachate buildup within the disposal units, a summary of leachate volumes removed from the units, and a discussion of the leachate disposal/treatment methods utilized.
- g. An evaluation of the effectiveness of the leak detection, monitoring, control, and removal facilities, which includes an evaluation of fluid buildup within the Leak Detection System units, a summary of fluid volumes removed from the units, and a discussion of the leachate disposal/treatment methods utilized.
- h. An evaluation of the effectiveness of the Groundwater Subdrain detection, monitoring, control, and removal facilities, which includes an evaluation of fluid buildup within this system, a summary of fluid volumes removed, and a discussion of the disposal/treatment methods utilized.
- i. A summary and certification of completion of all standard observations for the waste management unit, the perimeter of the waste management unit, and the receiving waters.
- j. The quantity and types of wastes disposed of during each quarter of the reporting period, and the locations of the disposal operations. Locations of waste placement shall be depicted on a map showing the area, if any, in which filling has been completed during the previous calendar year.
- k. Tabular and graphical summaries of the monitoring data obtained during the previous year; the report should be accompanied by a 3<sup>1</sup>/<sub>2</sub>" computer data disk, MS-DOS ASCII format, tabulating the year's data.

## 2. CONTINGENCY REPORTING

- a. A report shall be made by telephone of any seepage from the disposal area immediately after it is discovered. A written report shall be filed with the

Board within five days thereafter. This report shall contain the following information:

- 1) a map showing the location(s) of discharge;
  - 2) approximate flow rate;
  - 3) nature of effects; i.e. all pertinent observations and analyses; and
  - 4) corrective measures underway or proposed.
- b. A report shall be made in writing to the Board within seven days of determining that a statistically significant difference occurred between a downgradient sample and a WQPS. Notification shall indicate what WQPS(s) has/have been exceeded. The discharger shall immediately resample at the compliance point where this difference has been found and re-analyze.
- c. If resampling and analysis confirms the earlier finding of a statistically significant difference between monitoring results and WQPS(s) the discharger must submit to the Board, an amended Report of Waste Discharge as specified in Section 2550.8(k)(5) for establishment of an Evaluation Monitoring Program (EMP) meeting the requirements of Section 2550.9 of Chapter 15.
- d. Within 180 days of determining statistically significant evidence of a release, submit to the regional board an engineering feasibility study for a Corrective Action Program (CAP) necessary to meet the requirements of Section 2550.10. At a minimum, the feasibility study shall contain a detailed description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern.

### 3. WELL LOGS

A boring log and a monitoring well construction log shall be submitted for each sampling well established for this monitoring program, as well as a report of inspection or certification that each well has been constructed in accordance with the construction standards of the Department of Water Resources. These shall be submitted within 30 days after well installation.

Part B

1. DESCRIPTION OF OBSERVATION STATIONS AND SCHEDULE OF OBSERVATIONS

A. WASTE MONITORING - Observe Semi-annually, Report annually, include as independent section with adjacent unit report.

1. Record the total volume and weight of waste in cubic yards and tons disposed of at the site during each month showing locations and dimensions on a sketch or map.
2. Record a description of waste stream to include percentage of waste type (i.e. Terminal Wastewater Treatment Plant Sludge, Dewatered Wastewater Treatment Oil Separation System Sludge, etc).
3. Results (annually) of analyses of each waste stream
4. Record location and aerial extent of disposal of each waste type, with map locations .

B. FACILITIES MONITORING - Observe quarterly, Report annually, include as independent section with adjacent unit report.

The Discharger shall inspect all facilities to ensure proper and safe operation once per quarter and report annually. The facilities and issues to be monitored shall include, but not be limited to:

1. Leachate Collection and Removal System;
2. Surface water retention basin;
3. Landfill subdrain/groundwater removal system;
4. Remaining landfill capacity/waste volume in place ;
5. Interior landfill drainage/berm system;
6. Leak detection system;
7. Leachate management facilities and secondary containment; and
8. All other surface water runoff containment structures.

- C. PHOTODOCUMENTATION OF FACILITIES MONITORING - Observe and Report annually, include as independent section with adjacent unit report.

The discharger shall provide a photodocumentation of conditions at locations that include, but are not limited to, the WMU facilities listed above. This photodocumentation of facilities monitoring shall be submitted on a annual basis. Locations from which photographs are taken should be permanent stations, such that they can be used for successive reports.

- D. GROUND WATER and SURFACE WATER MONITORING - Sample and analyze as indicated on Table A-1, Report annually, include as independent section with adjacent unit report.

Groundwater and surface water shall be monitored as outlined below and on Table A-1 (Attached) and shown on Figure A-1 (Attached).

**Upper Saturated Zone, Liner System, and Background Monitoring Points For Each Monitored Media**


Monitoring System Location	Compliance Point	Background Point
Groundwater Subdrain	GS-1	One well along southern perimeter of WMU II.
Downgradient of WMU II	Two wells along northern perimeter of WMU II.	One well along southern perimeter of WMU II.
Leachate Collection and Removal System (LCRS)	LCRS-1, at the LCRS sump or outflow pipe from LCRS.	N/A
Leak Detection System (LDS)	LDS-1, at the LDS sump or outflow pipe from LDS.	LCRS-1



I, Steven R. Ritchie, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedures set forth in this Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in this Board's Order No. 94-040.
2. Is effective on the date shown below.
3. May be reviewed or modified at any time subsequent to the effective date, upon written notice from the Executive Officer.

Date Ordered: March 16, 1994

  
\_\_\_\_\_  
Steven R. Ritchie  
Executive Officer

Attachments:      Figure A-1 -Monitoring Well Location Map  
                         Table A-1 - Discharge Monitoring Plan - List of Analytical Parameters

New York Slough

Facility Boundary

Proposed  
WMU II

Present WMU-I

Bldg. A



EXPLANATION



Groundwater Monitoring Well



General Direction Of Groundwater Gradient in  
Upper Saturated Zone

STATE OF CALIFORNIA  
REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

Figure A-1  
Monitoring Well Location Map  
Waste Management Unit II  
USS-POSCO Industries, Pittsburg Facility  
Contra Costa County

DRAWN BY: *ML* DATE: 2/94 DRWG. NO.

TABLE A-1

DISCHARGE MONITORING PLAN - LIST OF ANALYTICAL PARAMETERS  
Waste Management Unit II  
USS-POSCO Industries, Pittsburgh Facility  
Contra Costa County

PARAMETERS	METHOD	REFERENCE	1994 SAMPLING SCHEDULE(a)	FUTURE SAMPLING SCHEDULE(b)
Water Level	Field	-	Quarterly	Annual
Temperature	Field	-	Quarterly	Annual
Total Dissolved Solids	160.1	1	Quarterly	Annual
Electrical Conductivity	9050	2	Quarterly	Annual
Chloride	9252	2	Quarterly	Annual
pH	9040	2	Quarterly	Annual
Arsenic	6010	2	Quarterly	Annual
Barium	6010	2	Quarterly	Annual
Cadmium	6010	2	Quarterly	Annual
Chromium	6010	2	Quarterly	Annual
Copper	6010	2	Quarterly	Annual
Iron	6010	2	Quarterly	Annual
Lead	6010	2	Quarterly	Annual
Manganese	6010	2	Quarterly	Annual
Mercury	6010	2	Quarterly	Annual
Nickel	6010	2	Quarterly	Annual
Zinc	6010	2	Quarterly	Annual
Volatile Organics	8240	2	Semiannually	5 years
Semivolatile Organics	8270	2	Semiannually	5 years
Oil and Grease	413.2	2	Semiannually	5 years

## NOTES:

1. Methods for Chemical Analysis of Water and Wastes, EPA 600/4/79/029, revised March 1983.
2. EPA SW-846.
- (a) First quarter monitoring for 1994 has been completed, leaving three remaining quarters.
- (b) This schedule begins January, 1995.